

**Parachernes (Arachnida, Chelonethida, Chernetidae)
from the Coast of North Carolina^{1, 2}**

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In a series of collections of pseudoscorpions made by Dr. Peter Weygoldt in the vicinity of Beaufort, North Carolina, were found representatives of two new species of *Parachernes*. Inasmuch as Dr. Weygoldt's detailed observations of the courting and mating behavior of these new forms will appear in print shortly (1969), it is necessary to have formal descriptions of them on record.

We are greatly indebted to Dr. Weygoldt for supplying the specimens. The types are deposited in the American Museum of Natural History.

The genus *Parachernes* is widely distributed in America and the Pacific area. A number of species have been described from the United States, but none from the eastern part of the country is well known. It is hoped that the detailed knowledge of the two new species will serve as the basis for a critical review of the genus.

***Parachernes litoralis*, NEW SPECIES**

MATERIAL. Holotype male (WM 914.01010) and twenty-two paratypes (fourteen males and eight females) collected under driftwood on beach at Beaufort, Carteret County, North Carolina in March 1966, and two paratype males collected under bark at Pine Knoll Shores, Morehead City, Carteret County, North Carolina in February 1966, all by Peter Weygoldt.

DESCRIPTION.—*Male*: (Measurements are given first for the holotype, followed in parentheses by ranges for all males.) Carapace and tergites yellow-brown in color, palps dark red-brown. Carapace longer than broad, the greatest breadth along the posterior edge; mid and posterior furrows very distinct; surface of carapace moderately heavily sclerotized and densely granulate cephalad of the posterior furrow, as shown in Fig. 1; caudad of the posterior furrow the granules are lightly sclerotized except for those occurring on the keel. The keel is a median, short, wide, slightly elevated, posterior projection of the sclerotized area of the carapace, about 0.3 times as long as basal width, as shown in Fig. 1. Granules between furrows are round-based, smoothly rounded, and moderately distant from one another; those on keel appear as separate, distinct, projections of thickened carapacial cuticle. Two large, distinct eyes present, each about one ocular diameter from the anterior edge. About fifty setae on carapace, of which four are at the anterior and six to nine at the posterior margin. Setae multidenticulate terminally.

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Tergites heavily sclerotized and densely granulate; tops of most granules flattened (Fig. 2). Tergal setae terminally multidenticulate; tergal chaetotaxy 7: 9: 6: 10: 8: 9: 10: 10: 9: 8: 8: 2(6-9: 7-9: 6-10: 8-11: 8-11: 9-11: 8-13: 9-12: 8-11: 7-11: 5-10: 2). Sternites not so heavily sclerotized as tergites. Sternal setae predominately acuminate, a few toward the posterior end weakly denticulate; chaetotaxy 47: [9]: (2)6(3): (1)5(1): 11: 11: 13: 12: 12: 8: 6: 2 (32-49: [5-10]: (1-3)6-9(1-3): (1)4-6(1): 10-12: 10-14: 12-14: 11-13: 9-12: 6-12: 5-6: 2); lateral-most setae of each sternite somewhat distant from next in the row.

Anterior genital operculum with 6(6-8) long setae around genital aperture surrounded by 41(26-41) shorter setae. Posterior edge of aperture with 9(5-10) small setae. Posterior operculum with 6(6-9) marginal setae.

Chelicera about one third the length of the carapace. Palm with five (rarely six) setae; *sb* and *b* dentate, *cs* long and acuminate; *sb* and *b* as long as or longer than *cs*. Fixed finger with three small subterminal teeth and three larger teeth along middle of margin. Movable finger with a subterminal lobe plus an occasional small tooth. Galea long and with 5(4-6) rami. Serrula exterior with 20(16-21) blades. Flagellum with three setae, the most distal one serrate.

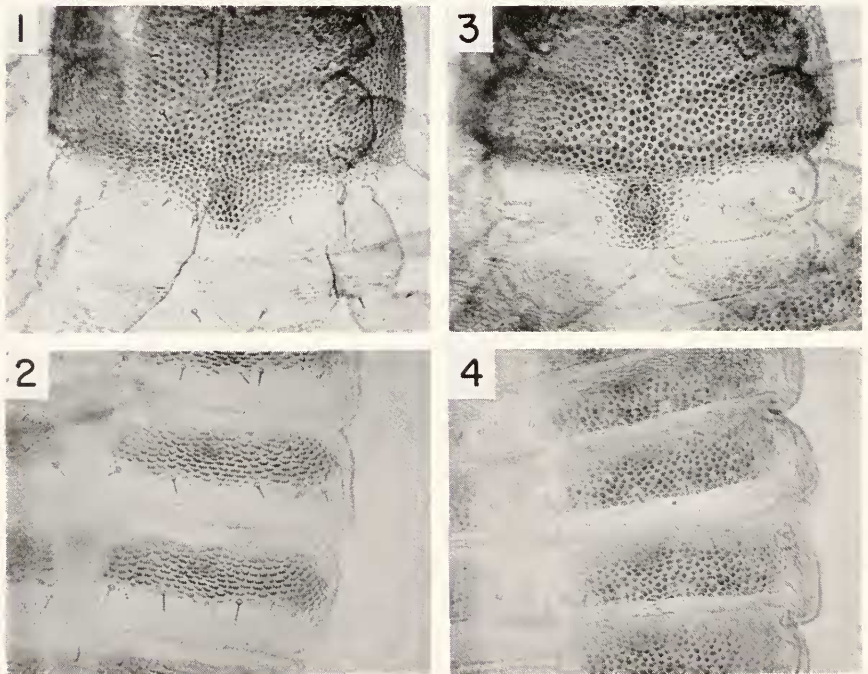


FIG. 1. *Parachernes litoralis*, n.sp.; paratype, posterior portion of carapace, showing granulations, keel, and marginal setae. FIG. 2. Same; right tergites 5 and 6, showing granulations and setae. FIG. 3. *Parachernes corticis*, n.sp.; paratype, posterior portion of carapace, showing granulations, keel, and marginal setae. FIG. 4. Same; right tergites 5 and 6, showing granulations and setae.

Palps short and stout, as shown in Fig. 5. Chela granulate on small area of flexor margin near base of movable finger and faintly granulate on dorsal surface. Tibia, femur, and trochanter densely granulate. Tactile setae of chela as shown in Fig. 6. Fixed finger of chela with 37(32-38) and movable finger with 41(35-43) low, cusped, marginal teeth, the cusps becoming reduced toward proximal end of row. Each finger with one to four interior and three to nine exterior accessory teeth. Nodus ramosus of movable finger very slightly proximad of seta *t*. Venom duct of fixed finger much reduced; nodus ramosus slightly proximad of seta *ct*. Trochanter 1.6(1.25-1.8), femur 2.55(2.4-2.7), tibia 2.3(2.15-2.4), chela 2.65(2.3-2.7) times as long as broad; hand 1.35(1.3-1.5) times as long as deep; movable finger 0.95(0.85-1.0) times as long as hand.

Legs typical. Leg I with basifemur 1.5(1.35-1.6) and tibia 3.0(2.9-3.05) times as long as wide. Leg IV with entire femur 3.1(2.9-3.3) and tibia 4.0(3.45-4.05) times as long as wide; tactile seta on tarsus distal, about two thirds the length of the segment from the proximal end.

Female: (Measurements are ranges for the eight paratypes.) Carapace and tergites slightly lighter color than in male, palp the same color as male; lengths of carapace, chela, and femurs of first and fourth legs greater than those of male, lengths of other segments similar. Carapacial setae 46-54. Tergal chaetotaxy 9-10:9-11:9-10:10-14:11-13:10-13:10-14:11-13:11-13:9-12:8-11:2. Sternal chaetotaxy 22-28:(1-3)6-7(1-4):(1)5-7(1):11-12:12:13-15:12-14:12:10-12:6:2. Anterior operculum with two spaced setae on each side of a compact, central group of 18-24.

Chelicerae slightly more than one third the length of the carapace; galea as in male.

Palps similar to those of male but stouter. Fixed finger of chela with 34-37 and movable finger with 37-43 teeth. Interior accessory teeth 0-3, exterior accessory 3-9. Trochanter 1.4-1.7, femur 2.35-2.7, tibia 2.1-2.35, chela 2.5-2.8 times as long as broad; hand 1.3-1.6 times as long as deep; movable finger 0.8-0.9 times as long as hand.

Legs similar to those of male, but slightly stouter.

Measurements (in mm.): *Male*: Body length, 2.1(1.8-2.25); carapace length, 0.725(0.65-0.775); greatest width, 0.615(0.52-0.71); diameter of eyes about 0.06; chelicera 0.235(0.19-0.24) long by 0.12(0.11-0.13) broad, movable finger, 0.17(0.13-0.17). Galea 0.03(0.025-0.03) long. Palpal trochanter, 0.305(0.27-0.32) long by 0.185(0.17-0.22) broad; femur, 0.55(0.495-0.595) by 0.22(0.20-0.235); tibia, 0.55(0.495-0.60) by 0.24(0.22-0.255); chela, 0.90(0.84-0.94) by 0.34(0.335-0.37); hand, 0.485(0.45-0.51) by 0.36(0.31-0.36); movable finger, 0.465(0.40-0.50) long. Leg I: basifemur, 0.185(0.16-0.185) long by 0.125(0.11-0.125) broad; telofemur, 0.27(0.25-0.285) by 0.12(0.105-0.12); tibia, 0.24(0.205-0.25) by 0.08(0.08-0.09); tarsus, 0.235(0.20-0.27) by 0.055(0.05-0.06). Leg IV: entire femur 0.495(0.465-0.53) long; basifemur, 0.185(0.18-0.205) by 0.135(0.13-0.15); telofemur, 0.38(0.34-0.40) by 0.17(0.155-0.17); tibia, 0.36(0.33-0.38) by 0.095(0.09-0.105); tarsus, 0.30(0.27-0.32) by 0.07(0.06-0.07); tactile seta, 0.22(0.16-0.23) from proximal end of segment.

Female: Body length, 2.07-2.83; carapace length, 0.74-0.80; greatest width, 0.54-0.85; diameter of eyes about 0.07; chelicera 0.22-0.25 long by 0.105-0.14 broad, movable finger, 0.155-0.19. Palpal trochanter 0.28-0.33 long by 0.18-0.205 broad; femur, 0.53-0.59 by 0.20-0.23; tibia, 0.53-0.58 by 0.22-0.27; chela, 0.91-0.99 by 0.335-0.39; hand, 0.49-0.53 by 0.30-0.35; movable finger, 0.415-0.48 long. Leg I: basifemur 0.17-0.20 by 0.12-0.13; telofemur, 0.26-0.29 by 0.12; tibia, 0.23-0.26 by 0.07-0.09; tarsus, 0.22-0.27 by 0.06. Leg IV: entire femur, 0.51-0.565 long; basifemur, 0.21-0.23 by 0.135-0.15; telofemur, 0.38-0.425 by 0.155-0.18; tibia, 0.34-0.40 by 0.09-0.105; tarsus, 0.285-0.32 by 0.07.

Parachernes corticis, NEW SPECIES

MATERIAL.—Holotype male (WM 925.02001), one paratype male and two paratype females collected in Carteret County, North Carolina along North Carolina Highway 58, April 1966; three paratypes, one male and two females, collected at Beaufort, March 1966; two paratypes, one male and one female, collected at Pine Knoll Shores, Morehead City, February 1966, under bark; all collections by Peter Weygoldt.

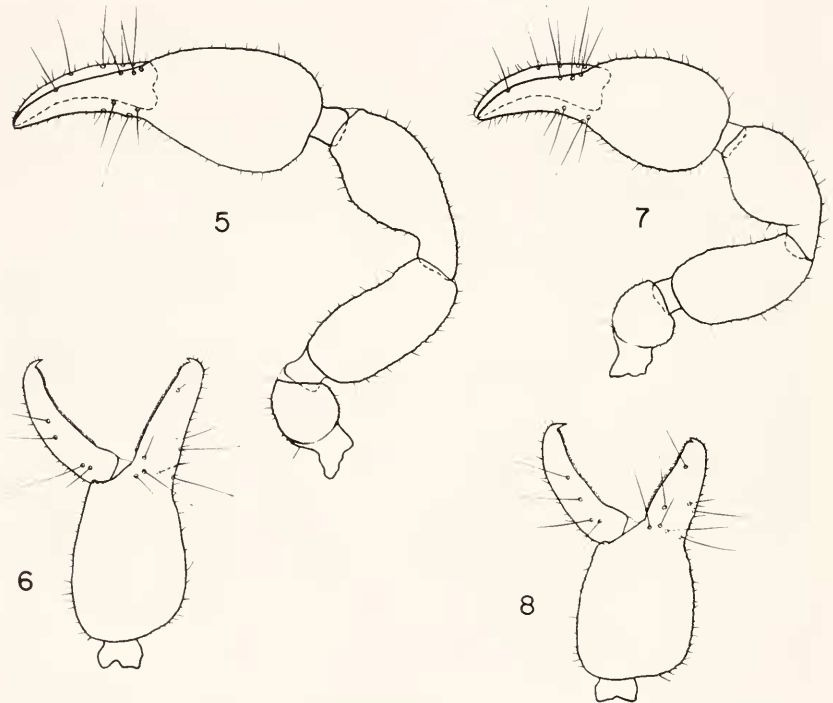


FIG. 5. *Parachernes litoralis*, n.sp.; holotype male, dorsal view of right palp. Fig. 6. Same; paratype male, lateral view of left chela. Fig. 7. *Parachernes corticis*, n.sp.; holotype male, dorsal view of right palp. Fig. 8. Same; lateral view of left chela.

Description.—*Male*: (Measurements are given first for the holotype, followed in parentheses by ranges for all males.) Carapace and tergites deep yellow-brown in color, palps very dark red-brown; carapace slightly longer than broad; generally triangular, though bluntly rounded anteriorly, the greatest breadth along the posterior edge; mid and posterior furrows usually distinct but narrow; surface heavily sclerotized and densely granulate, as shown in Fig. 3. Granules between furrows round-based, smoothly rounded, and moderately distant from one another. Medial posterior

sclerotized keel of carapace as shown in Fig. 3, extends well caudad of the posterior furrow, is elevated and about 0.7 times as long as basal width, occasionally appearing rounded. Many granules on keel close-set, low, and not distinctly separated, while others occur as separate cuticular projections. Two indistinct eyespots present. Carapacial setae between 47 and 58 and clavate from base.

Tergites heavily sclerotized and granulate (Fig. 4); tops of most granules rounded. Tergal setae clavate from base; tergal chaetotaxy 8:10:8:12:12:12:12:12:10:8:2. Sternites not as heavily sclerotized as tergites. Sternal setae predominately acuminate, but some toward the posterior end weakly denticulate; chaetotaxy 45:[7]:(2)9(2):(1)8(1):12:17:13:13:12:9:6:2; lateral-most setae of each sternite somewhat distant from next in row.

Anterior genital operculum with 8(8) long setae around genital aperture surrounded by 37(23-37) shorter setae. Posterior edge of aperture with 7(7-9) small setae. Posterior operculum with 9(6-9) marginal setae.

Chelicera slightly more than one third the length of the carapace. Palm with five setae; *sb* and *b* dentate, *cs* acuminate; *sb* and *b* equal to or less than the length of *cs*. Fixed finger with three small subterminal teeth and three larger teeth along middle of margin. Movable finger with few to no small teeth distal. Galea long and with 6(3-6) rami. Serrula exterior with 18(18) blades. Flagellum with three setae, the most distal one serrate.

Palps short and stout, as shown in Fig. 7. Chela granulate in small area of flexor surface near base of movable finger and faintly granulate on dorsal surface. Tibia, femur, and trochanter densely granulate. Tactile setae of chela as shown in Fig. 8. Fixed finger of chela with 26(20-31) and movable finger with 33(31-33) low, cusped, marginal teeth, the cusps becoming reduced toward proximal end of row. Each finger with zero to three interior and four to seven exterior accessory teeth. Nodus ramosus of movable finger slightly proximad of seta *t*. Venom duct of fixed finger vestigial and with nodus ramosus slightly proximad of seta *ct*. Trochanter 1.6(1.5-1.6), femur 2.15(2.15-2.2), tibia 1.9(1.85-1.95), chela 2.35(2.3-2.4) as long as broad; hand 1.2(1.2) times as long as deep; movable finger 0.9(0.9-1.0) times as long as hand.

Legs typical. Leg I with basifemur 1.15(1.15-1.35) and tibia 2.75(2.7-2.8) times as long as wide. Leg IV with entire femur 2.6(2.5-2.75) and tibia 3.2(3.2-3.6) times as long as wide; tactile seta on tarsus distal, approximately two thirds the length of the segment from the proximal end.

Female: (Measurements are ranges for the five females.) Color as in male; lengths of carapace, chela, and femurs of first and fourth legs longer than those of male, other segments similar. Carapacial setae 55-61. Usually some granules on keel indistinctly separated and appear connected by a ridge across their apices; other granules close-set, low and single. Tergal chaetotaxy 10-11:10-14:12-13:14-15:12-15:12-15:12-15:12-13:12-13:10-12:7-8:2. Sternal chaetotaxy 22-25:(1-2)6-8(1-2):(1)7-8(1):11-13:10-16:16-19:15-18:15-17:11-12:6-9:2. Anterior operculum with two to five setae scattered on each side of a compact central group of 13-19.

Chelicera as in male, slightly more than one third the length of the carapace. Galea as in male.

Palps similar to male but stouter. Granulation as in male. Fixed finger with 27 and movable finger with 30-33 teeth. Interior accessory teeth 0-3, exterior accessory 5-7. Trochanter 1.4-1.6, femur 2.1-2.4, tibia 1.85-2.0, chela 2.1-2.4 as long as broad; hand 1.15-1.25 times as long as deep; movable finger 0.8-0.95 times as long as hand.

Legs like those of male, but slightly stouter.

Measurements (in mm.): *Male*: Body length, 1.82(1.6–1.9); carapace length, 0.66(0.615–0.66); greatest width, 0.58(0.57–0.62). Eyes 0.05(0.04–0.08) from anterior edge of carapace, diameter 0.05(0.04–0.07). Chelicera 0.215(0.18–0.215) long by 0.12(0.10–0.12) broad, movable finger, 0.14(0.135–0.155). Palpal trochanter, 0.28(0.27–0.29) long by 0.175(0.175–0.185) broad; femur, 0.45(0.445–0.47) by 0.21(0.205–0.22); tibia, 0.435–(0.43–0.47) by 0.23(0.22–0.24); chela, 0.73(0.725–0.745) by 0.31(0.305–0.32); hand, 0.39(0.385–0.39) by 0.33(0.315–0.33); movable finger, 0.36(0.35–0.385) long. Leg I: basifemur, 0.135(0.135–0.155) long by 0.12(0.115–0.12) broad; telofemur, 0.23(0.22–0.255) by 0.125(0.11–0.125); tibia, 0.22(0.22–0.23) by 0.08(0.08); tarsus, 0.22(0.205–0.22) by 0.055(0.055). Leg IV: entire femur, 0.44(0.43–0.44) long; basifemur, 0.17(0.17–0.175) by 0.14(0.13–0.14); telofemur, 0.32(0.32–0.335) by 0.17(0.155–0.18); tibia, 0.335(0.33–0.34) by 0.105(0.09–0.105); tarsus, 0.28(0.255–0.28) by 0.07(0.06–0.07); tactile seta, 0.18(0.175–0.19) from the proximal end of the segment.

Female: Body length, 1.89–2.40; carapace length, 0.67–0.755; greatest width, 0.64–0.755; eyes 0.09–0.055 from anterior edge of carapace, diameter 0.062–0.075; chelicera 0.19–0.235 long by 0.11–0.12 broad, movable finger, 0.14–0.17. Palpal trochanter 0.27–0.335 long by 0.175–0.205 broad; femur, 0.465–0.54 by 0.21–0.235; tibia, 0.445–0.51 by 0.22–0.27; chela, 0.77–0.855 by 0.33–0.40; hand, 0.42–0.495 by 0.335–0.40; movable finger, 0.40–0.415 long. Leg I: basifemur, 0.14–0.18 by 0.11–0.13; telofemur, 0.23–0.28 by 0.11–0.13; tibia, 0.23–0.26 by 0.075–0.08; tarsus, 0.21–0.235 by 0.05–0.06. Leg IV: entire femur, 0.445–0.53 long; basifemur, 0.185–0.21 by 0.125–0.16; telofemur, 0.315–0.38 by 0.155–0.185; tibia, 0.35–0.41 by 0.09–0.11; tarsus, 0.235–0.305 by 0.06–0.08.

REMARKS.—The two species of *Parachernes* described above are differentiated by the following:

P. litoralis: Eyes large, distinct; carapace clearly longer than wide; posterior keel short, wide, slightly elevated, with single, distinctly separate granules; setae of carapace and tergites multidenticulate from upper half; tops of granules on tergites two through seven mostly flattened; primarily a beach species, though occasionally found under bark in areas adjacent to beaches.

P. corticis: Eyes small, not distinct; carapace not longer than wide or only slightly longer, generally triangular; posterior keel, narrow, elevated, occasionally appearing rounded, with granules, particularly of the females, close-set, low, and not always distinctly separated; setae of carapace and tergites clavate from base; tops of granules mostly rounded on tergites two through seven; primarily a bark species.

P. litoralis and *P. corticis* are certainly different from the other species of *Parachernes* known from the eastern United States. They are easily distinguished from *P. latus* (Banks), *P. latimanus* (Banks) and *P. diversus* (Banks), from Florida, by the shape of the chelal hand, which is smoothly rounded at the base in both the new species, but is broad and somewhat angular in *latus*, *latimanus* and *diversus* (see Hoff, 1947). And they may be separated from *P. virginica* (Banks) by the shape of the bases of the

granules on the carapace, which are smoothly rounded in both new species but very irregular in *virginica*.

It is worthwhile to append here some comments made by Dr. Weygoldt (in litt.) concerning these two species as they were observed at the time of collection.

"The *Parachernes* are two distinct species easily distinguishable in the field. One of them [*P. loitralis*] is a large form, occurring along the sea shore just above the high tide line and sometimes going higher into the dunes, though the more humid upper drift line seems to be its normal biotope. These animals are very agile, readily running away into small crevices as soon as a piece of driftwood is turned over. *Dinocheirus* [*tumidus*], too, lives in the drift line, but in the more humid or even wet parts below the high tide line. Sometimes both species occur on the same piece of wood, *Dinocheirus* on the wet end, *Parachernes* on the more dry end. *Parachernes* [*litoralis*], in Beaufort, hibernates as adult and is very difficult to find during winter. In April hundreds of animals appear rather suddenly and start mating. In July I find the first deutonymphs (I have not collected regularly) and it seems that all animals reach maturity within the summer."

"The other *Parachernes* [*corticis*] . . . occurred under the bark at the base of dead or dying deciduous trees in the forests. On Pine Knoll Shores both species were collected rather close together, less than 10 meters between the two species; forest and drift line come rather close here. However, I never found specimens of both species in the same spot. . . . *Parachernes* [*corticis*] can be found during winter and . . . another sample was taken in May. In all samples there were all stages and the animals seemed to be active during winter. . . . This forest *Parachernes* is much smaller and very sluggish."

Other observations on these two species, concerning especially the courtship and mating behaviors, will be published elsewhere (Weygoldt, 1969).

LITERATURE CITED

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